REMARKS

Claims 1 through 34 remain in this application. Claims 3 through 5 have been amended.

The Office Action rejected claims 1 through 8, 10 through 17, 19, 20 through 28, and 30-34 under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 5,166,448 to Powell (the Powell reference). However, the Powell reference fails to disclose or suggest the elements of the claims.

The present invention of claim 1 requires a power amplifier having an input signal path and an output signal path and a predistortion linearizer circuit that is capable of generating a distorted signal which is reflected onto the input signal path of the power amplifier, wherein said predistortion linearizer is located a predetermined distance from the input signal path and not physically coupled to the input signal path. As shown in Figures 4 and 5 of the present application, the predistortion linearizer 402 is located a predetermined distance "d" from the input signal path 416 and is not in physical contact with the input signal path 416. As explained in the specification at page 16, lines 20 through 25:

> "It should be noted that the predistortion linearizer 402 does not physically contact the signal path 416 or the power amplifier 406. As such, the predistortion linearizer 402 does not affect the signal path 416 nor does the predistortion linearizer 402 affect the operation of the power amplifier 406."

Thus, the predistortion linearizer of the present invention is able to reflect a distorted input signal onto the input signal path of the power amplifier without being in physical contact with the input signal path. This feature provides significant advantages to the invention.

The Powell reference fails to disclose the requirements of claim 1, *inter alia*, of a predistortion linearizer circuit that is capable of generating a distorted signal which is reflected onto the input signal path of the power amplifier, wherein said predistortion linearizer is located a predetermined distance from the input signal path and not physically coupled to the input signal path. Instead, the Powell reference shows in Figure 2, a coupler 307 that connects an input to distortion linearizer circuit 312 and a second coupler 308 that connects the output of time delay 310 to 313 and a third coupler 309 that couples signal back into the main signal path, as described at column 5, lines 14 through 30. The Powell reference never discloses or suggests

that the couplers 307, 308 or 309 are not physically coupled to the input signal path. It can not be inferred that the couplers are not physically coupled to the input signal path since the generally accepted definition of a coupler includes a physical interface. As defined in in the ISA dictionary, a copy of which is attached hereto, a coupler is:

> 1. Physical interface between trunk and spur or trunk and device [S50.02]. 2. In data processing, a device that joins similar items. 3. In fiber optics, a device which joins together three or more fiber ends -- splitting the signal from one fiber so it can be transmitted to two or more other fibers. "Directional," "star," and "tee couplers" are the most common.

Thus, the term "coupler" in the Powell reference without more description would infer a physical interface between the input signal and the distortion linearizer 312.

With respect to claim 2, the Powell reference nowhere discloses or suggests "a coupling circuit, coupled to said diode, capable of introducing a relatively small amount of power from the input signal into said diode and further capable of reflecting the distorted signal generated by said diode back onto the input signal path without being physically coupled to the input signal path." As stated above, the Powell reference never discloses or suggests that the couplers 307, 308 or 309 are not physically coupled to the input signal path. In addition, the Powell reference discloses two separate coupler circuits, a first for coupler 307 for passing the input signal and distortion generation and a second coupler 309 for coupling back to the main signal path. Finally, the Powell reference describes that signal is "coupled back" into the main signal path by the second coupler 309, at column 5, lines 28 through 30. This description teaches away from the present invention that the coupling circuit is capable of "reflecting the distorted signal" back onto the input signal path.

Furthermore, with respect to claim 3, the Powell reference nowhere discloses that the "coupling circuit includes a microstrip having a predefined shape and located a predetermined distance from the signal path leading into said power amplifier, and wherein the relatively small amount of power from the input signal is related to the predefined shape of the microstrip and the predetermined distance from the signal path." As stated above, the Powell reference provides no description of the couplers 307, 308 or 309, and certainly provides no description of a microstrip or that the amount of power from the input signal may be related to the predefined shape and the predetermined distance from the signal path.

Similarly for independent claims 10, 20 and 31, the Powell reference reference fails to disclose or suggest the requirements of the claims that a predistortion linearizer reflects a distorted signal onto a input signal path without being phyically connected to the input signal path for the above reasons. The Powell reference shows in Figure 2, a coupler 307 that connects an input to distortion linearizer circuit 312 and a second coupler 308 that connects the output of time delay 310 to 313 and a third coupler 309 that couples signal back into the main signal path, as described at column 5, lines 14 through 30. The Powell reference never discloses or suggests that the couplers 307, 308 or 309 are not physically coupled to the input signal path.

In addition, the Office Action rejected claim 33 over U.S. Patent 6,369,603 to Johnston et al. (the Johnston reference). The Examiner asserts that the reference is in an analogous art to the Powell reference because they are from a similar problem of solving for RF coupling device. However, as stated in the previous response, the Johnston reference does not disclose an RF coupling device. The Johnston reference discloses an apparatus for measuring the minority carrier lifetime of a semiconductor sample using radio frequency. In addition, the Office Action stated that the Johnston reference shows that a "predetermined distance between two coupling elements (244,232) can be tuned to compensate for the nonlinear spurs using metal variable capacitors (Col. 20 lines 50-60)." However, these two elements in the Johnston reference are a semiconductor sample that is stimulated by a laser 232 to generate radio waves and an antenna 244 to receive the radio waves radiated from the sample. These are not an input signal path to a power amplifier and a predistortion linearizer. Furthermore, there is no suggestion to combine the Powell reference with the Gans reference since the two references are in a completely different field. Even if combined, the two references would fail to meet the requirements of the claims since the antenna and semiconductor sample as shown in the Johnson reference cannot be used with a predistortion linearizer to reflect a distorted signal onto the input signal path of a power amplifier.

For the above reasons, the Powell reference and the Johnston reference fail to teach or suggest the requirements of the present claims.

CONCLUSION

This amendment places the application in condition for allowance. Therefore, it is respectfully requested that the rejection of the claims be withdrawn and full allowance granted. Should the Examiner have any further comments or suggestions, please contact Jessica Smith at (972) 477-9109.

Respectfully submitted,

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counting scale
Any of several designs of weighing device where the total weight of a large number of identical parts is compared with the weight of one part or the weight of a small, easily counted number of parts, and the number of parts in the unknown quantity determined by automatic indication, readout or calculation.

counts
1. An alternate form of representing raw data corresponding to the numerical representation of a signal received from or applied to external hardware. 2. The accumulated total of a series of discrete inputs to a counter. 3. The discrete inputs to an accumulating counter. See "digitized signal." 4. The number of time intervals counted by the dual-slope A/D converter and displayed as the reading of a panel meter, before addition of the decimal point.

couplant
A substance used to transmit sound waves from an ultrasonic search unit to the surface of a test piece, thus reducing losses and improving test accuracy; usual couplants include water, oil, grease, paste or other liquid or semisolid substances.

coupled control element action
A type of control system action in which two or more actuating signals or control element actions are used in concert to operate one control device.

coupled reference input
See "cascade action."

coupler
1. Physical interface between trunk and spur or trunk and device [S50.02]. 2. In data processing, a device that joins similar items. 3. In fiber optics, a device which joins together three or more fiber ends -- splitting the signal from one fiber so it can be transmitted to two or more other fibers. "Directional," "star," and "tee couplers" are the most common.

coupling
1. Any device that connects the ends of adjacent parts; the connection may be rigid, allowing little or no relative movement, or it may be flexible, accommodating misalignment and other sources of relative movement. 2. A mechanical fastening between two shafts that provides for the transmission of power and motion. Also known as "shaft coupling." 3. Interdependence in a computer system.

covalence
The number of covalent bonds which an atom can form.

covering power
The ability of an electroplating solution to give a satisfactory plate at low current densities, such as occur in recesses, but not necessarily to build up a uniform coating. Contrast with "throwing power."

cover plate
1. Any flat metal or glass plate used to cover an opening. 2. Specifically, a piece of glass used to protect the tinted glass in a welder's helmet or goggles from being damaged by weld spatter.

cowling
A metal cover, usually one that provides a streamlined enclosure for an engine.

CP/M
An operating system for microcomputers.

C power supply
An electrical power supply connected between the cathode and grid of a vacuum tube to provide a grid-bias voltage.

CPU
See "central processing unit;" see also "unit, central processing."

CPU bound
A state of program execution in which all operations are dependent on the activity of the central processor, for example, when a large number of calculations are being performed; compare to I/O bound.

crack
1. A fissure in a part where it has been broken but not completely severed into two pieces. 2. The fissure or chink between adjacent components of a mechanical assembly. 3. To incompletely sever a solid material, usually by overstressing it. 4. To open a valve, hatch, door or other similar device a very slight amount.

cracked flow
A nonstandard term. See "clearance flow" [S75.05].

cracked residue
The fuel residue obtained by cracking crude oils.

cracking
The thermal decomposition of complex hydrocarbons into simpler compounds or elements.

cracking furnace
Furnace used to produce enough heat to reduce the molecular weight of hydrocarbons by breaking the molecular bonds.

cracking process
A method of manufacturing gasoline and other hydrocarbon products by heating crude petroleum distillation fractions or residues in the presence of a catalyst so that they are broken down into lighter hydrocarbon products, some of which can be distilled off.

crane
A hoisting machine with a power driven horizontal or inclined boom and lifting tackle.

crane hoist
A mobile hoisting machine used principally for lifting loads by means of cables; it consists of a mobile undercarriage and support structure, a power unit and winch enclosed in a cab or house (often one that swivels on the undercarriage), a movable boom and various lifting, boom positioning and support cables.

crane scale
A type of lifting device integral with or attached to a crane hook and having an internal load cell that automatically weighs a load as it is lifted; where a strain gage load cell is used, weight can be indicated or recorded remotely.

crank
A mechanical link that can revolve about a center of rotation.

crankpin
A cylindrical projection on a crank for attaching a connecting rod.

crankshaft
1. A straight shaft to which one or more cranks are attached. 2. A cast, forged or machined shaft with integral cranks, such as is used in a reciprocating automobile engine.

crank throw
1. The web or arm of a crank. 2. The radial displacement of the crankpin from the crankshaft axis.

crank web
The portion of a crank that connects a crankpin to the crankshaft or to another adjacent crankpin. Also known as "crank throw."

crash
A computer hardware or software malfunction that causes the system to be reset or restarted.

crate
A temporary enclosure used to provide protection of an item during shipping, handling, and storage [RP60.11].

crater
1. A spot on the face of a cutting tool where it has been worn by contact with chips. 2. A depression at the finishing end of a weld bead.

crazing
1. A network of fine, shallow cracks at the surface of a coating, solid metal or plastics material. 2. Development of such a network.

CRC
See "cyclic redundancy check."

create
To open, write data to, and close a file for the first time.

creep
1. A change in output occurring over a specific time period while the measurand and all environmental conditions are held constant [S37.1]. 2. Time dependent plastic strain occurring in a metal or other material under stress, usually at elevated temperature.